

Tuesday, March 14, 2006
POSTER SESSION I: ASTEROIDS, COMETS, METEORITES
7:00 p.m. Fitness Center

Clark C. S. Clark P. E.

Using Boundary-based Mapping Projections to Reveal Patterns in Depositional and Erosional Features on 433 Eros [#1189]

Asteroid CSNB maps reveal morphological feature distribution patterns. On Eros, ponds are associated with local topographic maxima, particularly “noses” acting as “dust collectors”. Eroded craters surround ponds perhaps provide a source of dust.

Wyrick D. Y. Buczkowski D. L.

Understanding Regolith Distribution on 433 Eros Using Analyses of Pit Chains and Grooves [#1195]

The distribution of pit chains and grooves on Eros provides clues to the internal structure and the spatial distribution of regolith. Additional analyses of pit slopes and volumes provide information on regolith thickness and mechanical properties.

Haseltine J. D. Franzen M. A. Sears D. W. G.

Fluidization from Continuous Outgassing as a Cause of Geological Structures on 433 Eros [#1103]

We have performed experiments in a large environmental chamber to explore the possibility of subsurface volatiles emerging from the inside of 433 Eros, causing continuous fluidization processes that create various visible geological structures.

Haugsjaa A. L. Colwell J. E.

Modelling Electrostatic Dust Transport on Eros [#1225]

Images of the surface of Eros reveal a multitude of smooth dust ponds located within Eros craters. We present preliminary results from 3D modeling of electrostatic dust transport as a mechanism to explain these pond formations.

Prettyman T. H. Barraclough B. L. Feldman W. C. Baldonado J. R. Bernardin J. D. Dingler R. D. Enemark D. C. Little C. K. Miller E. A. Patrick D. E. Pavri B. Raymond C. A. Russell C. T. Storms S. A. Sweet M. R. Williford R. L. Wong-Swanson B.

Gamma Ray and Neutron Spectrometer for Dawn [#2231]

The gamma ray and neutron spectrometer for the Dawn mission to asteroids Vesta and Ceres is described.

Usui T. McSween H. Y. Jr.

Characterizing the Surface Elemental Composition of 4 Vesta Based on HED Meteorites: Prospective Study of Gamma-Ray and Neutron Spectrometer for the DAWN Mission [#1407]

The DAWN mission will explore two of the largest main-belt asteroids, Ceres and Vesta. We compile 42 whole-rock compositions of HED meteorites and present two diagnostic compositional diagrams to characterize the surface type of Vesta from GR/NS data.

Nishihara S. Abe M. Kitazato K. Sarugaku Y. Kuroda D. Hasegawa S. Kinoshita D.

Ground Based Observation for Asteroid Sample Return Mission Target [#2352]

We have observed 23 NEAs during 2003–2005, using the 1.05-m Kiso Schmidt telescope and the Lulin 1-m telescope. As the taxonomic types of 238 candidates are unknown, we performed the BVRI photometry. I present the results of multicolor photometry.

Hiroi T. Ueda Y. Nimura T. Abe M. Ishiguro M. Sasaki S.

A New Scheme for Estimating the Degree of Space Weathering Through Visible Multiband Spectroscopy Using an ECAS-Type Filter System Such as Hayabusa AMICA [#1396]

We have newly developed a scheme for estimating the degree of space weathering which is more free from effects of grain size and viewing geometry, utilizing the spectral inflections at around 0.4 and 0.55 μm . It is very useful for planetary remote sensing including spacecraft missions.

Trigo-Rodríguez J. M. Castro-Tirado A. J. Jelínek M. Vitek S. Llorca J. Fabregat J.
Two Likely Meteorite-dropping Bolides Recorded by a New High-Res All-Sky CCD Camera [#1559]
During 2005 all-sky CCD observations were carried out by two stations of the Spanish Meteor Network. As a result of this continuous monitoring two extraordinary bolides were recorded. Preliminary results obtained in studying both events are presented.

Binzel R. P. Thomas C. A. DeMeo F. E. Tokunaga A. Rivkin A. S. Bus S. J.
The MIT-Hawaii-IRTF Joint Campaign for NEO Spectral Reconnaissance [#1491]
Near-infrared spectra for ~80 near-Earth objects are publicly available via <http://smass.mit.edu>, where these data are obtained through a collaborative program on the NASA Infrared Telescope Facility.

Kaletzke L. Cloutis E. Craig M. McCormack K. Stewart L.
Possible Explanations for the 506 nm Feature in Telescopic Spectra of Vesta, Vestoids, and HED Meteorites [#2174]
On the basis of new high-resolution laboratory reflectance spectra, variations in the wavelength position of the 506 nm feature seen in reflectance spectra of Vesta, vestoids, and HED meteorites may be due to variations in plagioclase feldspar abundances rather than changes in pyroxene composition.

Milliken R. E. Mustard J. F.
Estimating Absolute H₂O Content of Low-Albedo Materials Using Reflectance Spectroscopy [#1954]
Physical and numerical experiments of minerals mixed with darkening agents were studied under various hydration states in an attempt to find a correlation between the 3 μ m water band and absolute H₂O content for low-albedo materials.

Dameron S. N. Burbine T. H.
Analysis of Meteorite Spectra in the Mid-Infrared [#1828]
To try to determine how well meteorites can be differentiated in the mid-infrared wavelength region, we are analyzing the spectral properties of meteorites from 0.3 to 25 μ m.

Reddy V. Dyvig R. R. Pravec P. Kusnirak P. Kornos L. Vilagi J. Galad A. Gajdos S. Pray D. P. Benner L. A. M. Nolan M. C. Giorgini J. D. Ostro S. J. Abell P. A.
Photometric and Radar Observations of 2005 AB: A New Binary Near-Earth Asteroid [#1755]
An estimated 15% of the NEA population are binaries. To better understand asynchronous binaries, a photometric survey was launched in 2004. We present photometric and radar observations of 2005 AB, the first binary discovered as part of the survey.

Kumar S. Hardersen P. S. Gaffey M. J.
Albedo Estimates and Near-Infrared Reflectance Spectroscopy of Near Earth Asteroids 1999 HF1 and 2005 AB [#1113]
Reflectance spectra and albedo estimates for NEAs 1999 HF1 and 2005 AB will be presented.

Nimura T. Hiroi T. Ohtake M. Ueda Y. Abe M. Fujiwara A.
An Attempt of Restricting Olivine Bands in the Modified Gaussian Model [#1600]
As an attempt of improving the capability of MGM in deconvolving olivine absorption bands from a mixture spectrum, a new set of constraints are proposed and tested for its applicability. This preliminary study has shown its potential usefulness.

Hoffman E. J. Hart C. Hatcher S.
Anomalous NIR and Mössbauer Spectra of High-Ca Pyroxenes: The Effect of Minor Phases [#1215]
High-Ca pyroxenes are common surface minerals, but some produce Type B NIR spectra, with anomalous 2- μ m absorption. For one, PYX018, SEM shows minute amounts of andradite, which we are mixing into PYX020, a compositionally-matched Type A sample.

Marsh C. A. Della-Giustina D. N. Giacalone J. Lauretta D. S.
Experimental Tests of the Induction Heating Hypothesis for Planetesimals [#2078]
Induction heating has been proposed to explain thermal processing of asteroidal materials. With our induction furnace we are unable to melt Fe metal alone, and mixtures of metal and olivine are more resistant to induction heating.

Wilson L. Goodrich C. A. Van Orman J.

Thermal History and Physics of Melt Extraction on the Ureilite Parent Body [#1177]

We show that melt extraction from the ureilite parent asteroid was very efficient, consistent with the preservation of oxygen isotopic heterogeneity despite high-T igneous processing, and with perfect fractional melting.

Conrad A. R. Dumas C. Merline W. J. Campbell R. D. Goodrich R. W. Le Mignant D. Chaffee F. H. Fusco T. Kwok S. Knight R. I.

Rotation and Morphology of Asteroid 511 Davida [#1955]

We present spatially resolved images of asteroid 511 Davida, one of ten large main belt asteroids imaged during the course of our Resolved Asteroid Program. We compare the shape, pole orientation, and size to measurements obtained by other methods.

García-Martínez J. L. Ortega-Gutiérrez F.

Four NEAs Associated with Meteoroid Streams [#2038]

Four NEAs apparently associated with meteoroid streams have been detected. The objects are thought to be asteroids of C-, D-, or P-types. The dimensions of these objects suggest they would be the top end of the meteoroid size distribution.

Cheng A. F. Dombard A. J.

Viscous Relaxation on Comets [#1986]

Observations suggest viscous relaxation of cometary ice might modify both the shapes and cratering records of Jupiter family comets. Model parameters and predictions are consistent with plausible values for comets.

Bottke W. F. Chapman C. R.

Determining the Main Belt Size Distribution Using Asteroid Crater Records and Crater Saturation Models [#1349]

Craters on Eros, Ida and Mathilde were formed by a shallow main belt size distribution (SD) w/differential $q \sim -3.5$. The steep crater SD on Gaspra was the by-product of a recent event and does not represent time-averaged main belt conditions.

Izenberg N. R. Barnouin-Jha O. S.

Laboratory Simulation of Surface Seismic Effects on Low Gravity Bodies [#2017]

The effects of seismic shaking on low gravity bodies are being explored via laboratory modeling using a Seismic Simulation Mockup containing regolith simulant, mounted on a vibration table. Pilot test data and results will be presented.

Korycansky D. G. Asphaug E.

Rigid-Body Dynamics and Secondary Impact Ejecta on Asteroids [#1465]

We report results of modeling rigid-body dynamics applied to asteroids, in particular, the dynamics of ejecta from impacts onto asteroids.